FACTORY MAX
We Maximize Your Profit

TESA TECHNOLOGY

TESA-HITE Plus M

The multi-function Swiss Made height gauge that offers an unbeatable Price/Performance ratio.

Order No.	Description	Measuring span mm	List Prices	Special Prices
00730045	TESA-HITE plus M 400	405	268,562	201,098
00730046	TESA-HITE plus M 700	405	303,390	211,880
00730057	TESA-HITE plus M 400 + Built-in Printer	705	287,036	215,115
00730058	TESA-HITE plus M 700 + Built-in Printer	705	321,864	225,359

EXCEPTIONAL PRICE REDUCTIONS FOR EXCEPTIONAL PRODUCTS !

TESA-HITE from

1D ⌀ ⊥ ◁ 2D Motorized

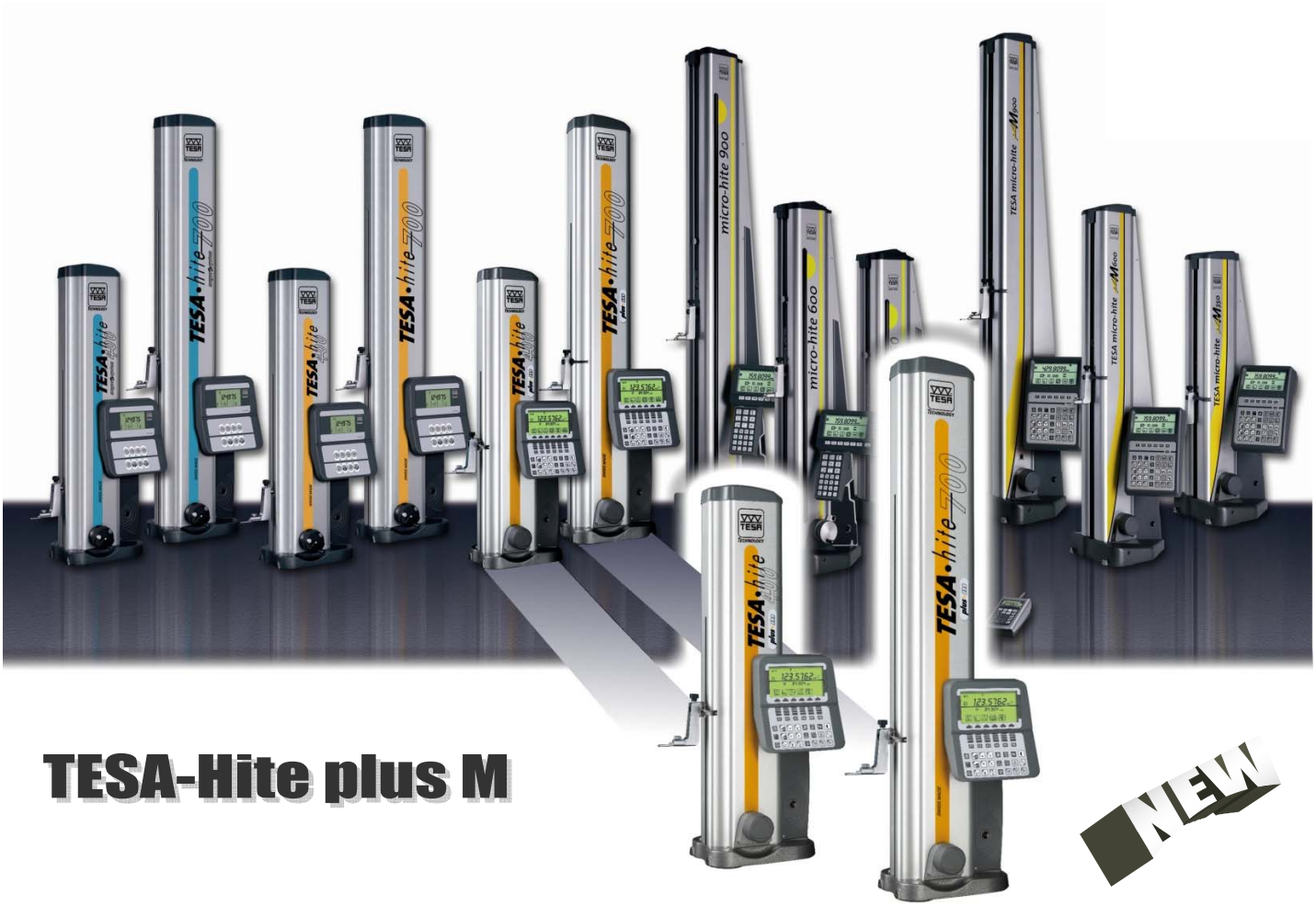
Maximum permissible error : 2,5 + 3L , L in m – Repeatability (2σ) : 1 µm

SWISS MADE

This offer lasts until :
31.12.2009
VAT excluded

FACTORY MAX CO., LTD.

PRODUCT INFO



High performance height gage for an easy and advanced application in factory environment. The motorised probing is user friendly and offer better technical characteristics.
This instrument is quick and simple but has also big potential for advanced user who needs functionalities like 2D or perpendicularity. The small base is a strong point for factories where often the space is limited and the measuring granite loaded of parts.

Special features	*- Quick and simple use* *- Advanced functionalities for time to time use* *- Measure keys or measure wheel* *- Measurement program for repetitive measures* *- Motorised displacement for easier use* *- Air cushion* *- Small size on the granite*

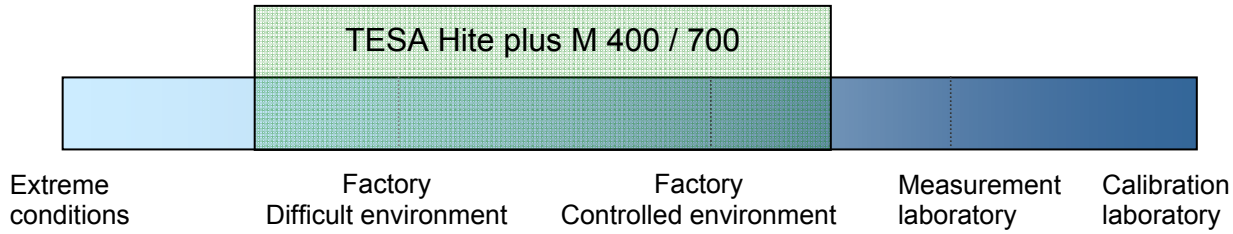
Simple column with powerful background and optimal specification.	
Maximum permissible errors Limit deviations	*2.5+3*L μm (L in m)*
Repeatability limit (2 σ)	*2μm*

Main characteristics

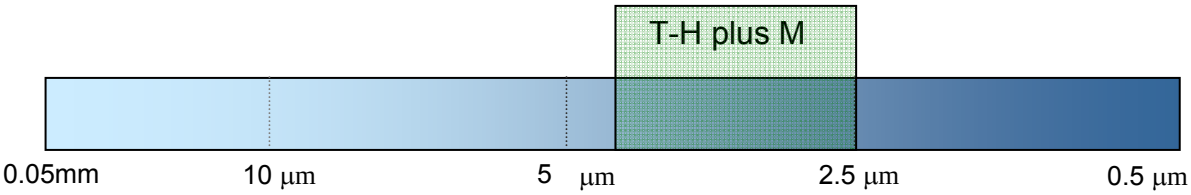
Application

The add value from a motorised height gage is not only on technical specifications but also on the user comfort. Mixed up with the program function, this solution is a powerful measuring instrument for repetitive measures on production floor.
Advanced functions like 2D and perpendicularity are also possible.
This height gage, due to the quick use, the functionalities and the size is a must for every workshop.

Environment



Accuracy



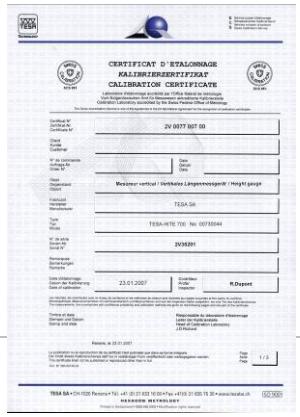
Functions

	Standard	Special acc.	1D	⌀	//	⊥	∠	2D		motorised
*2.5+3*L* µm	860 mm	1085 mm	•	•	•	•	•	•	•	•

Data output	Digital interface	***RS 232***

Concept & technology
TESA Design SWISS MADE — *Produced and controlled 100% in Switzerland*

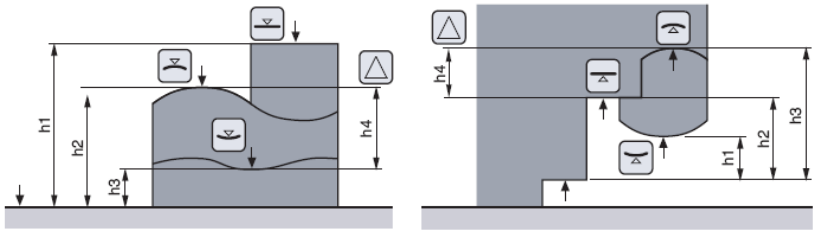
Certificate	SCS calibration certificate



Measure properties

A key functionality directly to use on all instruments of the TESA height gauges range is the simple consider of the last two measures. With a simple key calculate and display the difference between the previous measures.
The TESA hite plus M concept is based on a motorised height gauge for the factory with a potential of laboratory due to advanced functionalities.

Simple mode

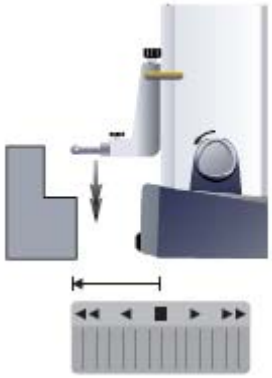


Mode n°1

This mode works for all measurement done in one direction from top or below. No calibration procedure is necessary after switch on the instrument.

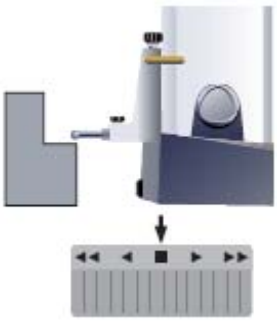
Function keys, available:

Quick positioning



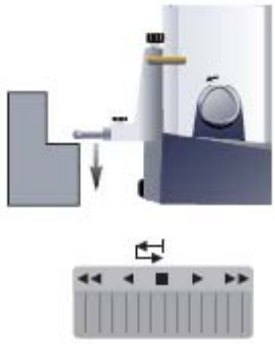
The quick displacement is reached by turning until limit the measure wheel or long pressure on following function keys:

Positioning



A short stop between quick displacement and the measure guarantee stability and good measurement conditions.

Start measurement

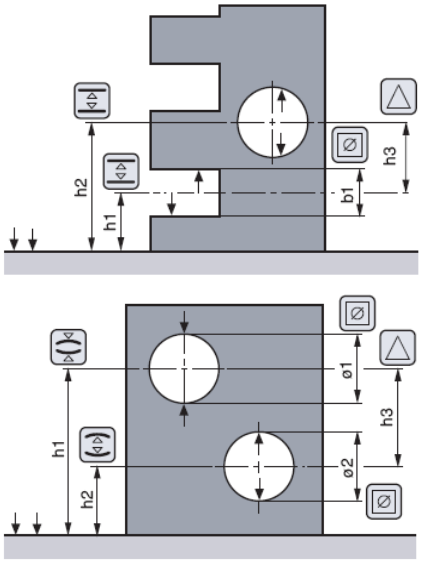


Short movement right or left of the measure wheel define the probing direction, up or down.

End of measurement

An automatic retract after probing indicates simply that the height gauge is ready for a new measure.

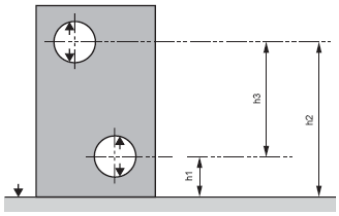
Calibrated mode



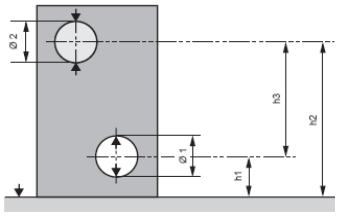
Mode n°2

Calibrated mode is fitting to most needs and considers the exact size of the measuring insert. After measuring and setting the probe constant the measure of distances, diameter and automatic calculation is simply displayed.
The Δ function gives on one button pressure results about distance between bore axes or groves considering last two measurements.

Function key requiring the calibration of the tip:



Measure without reverse point search, no diameter details are given.



The reverse (min and max) point gives the possibility of diameter value and position.

This function key start the groove measure, one probing up and down. It gives position and wide of the groove or simply position of a bore.

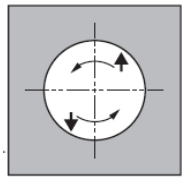
In opposite to the previous key, 2 separate measures up/down gives the possibility for external measures on parallel surfaces but not on diameter. Measures on shaft require movement of the instrument or the part and so positionning is not guaranteed anymore by the process.

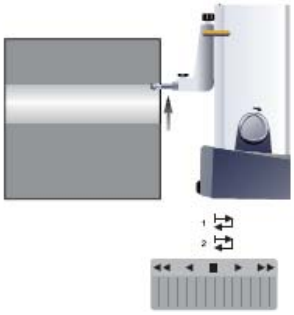
followed by

The delta key give the wide of groove or external parallel surfaces.

Symetry key calculate the center of the feature, like axis position for a bore.

The reverse point is found on bores and shafts true moving the part near the min/max point until an acoustic signal confirm the point is founded. As soon as the system has a maximum and a minimum it calculates the difference between them. This gives diameter and position of axis. Start of this search mode is done true measure wheel or function keys.

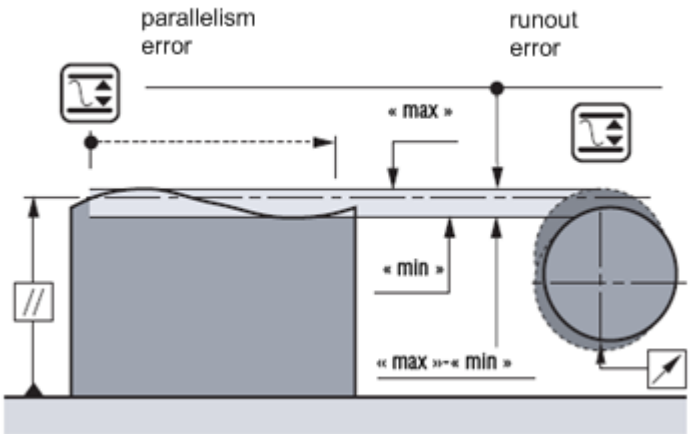




Start doing two short rotation on the wheel

Function keys to start, external and internal measurements.

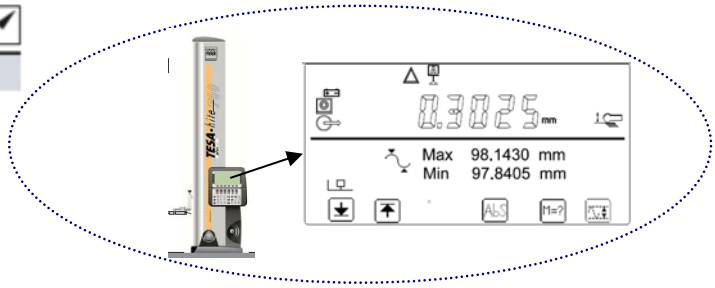
Parallélisme mode



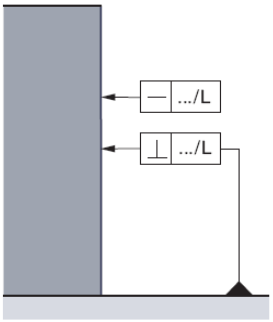
Advanced function, parallelism

The parallelism measurement establishes the deviation of a surface according to the reference surface. Results are given as deviation of parallelism, maximum value and minimum value.

Access to this mode is done true the advanced menu, followed by

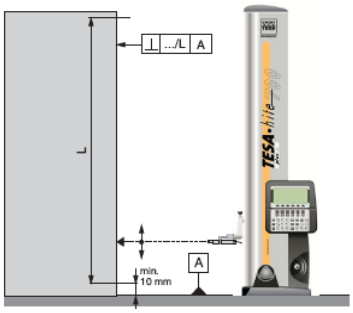


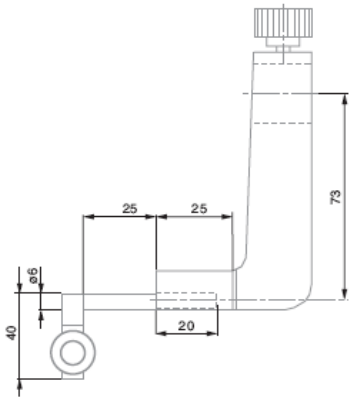
Perpendicularity mode



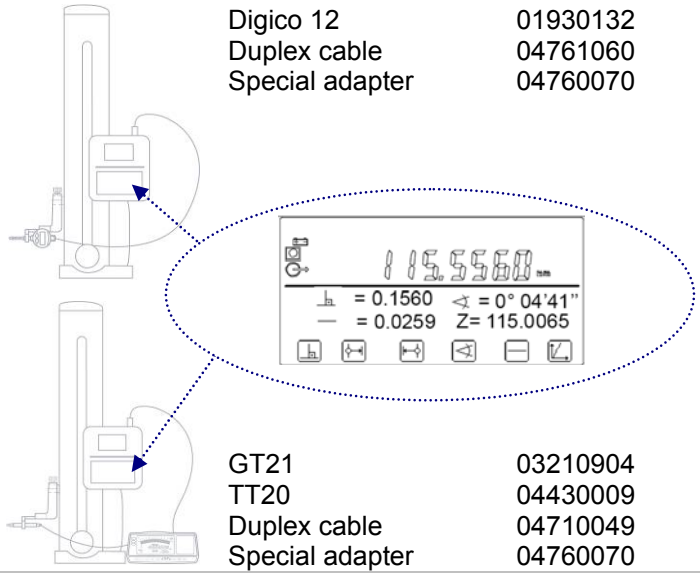
Advanced function, perpendicularity

An external measurement system offers an accurate and versatile solution for perpendicularity.
Details like Perpendicularity deviation, linearity, angle deviation and measured length are mentioned numerically and additionally the graphic of measured line is available.





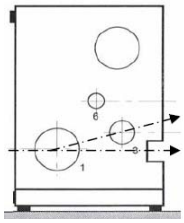
Probe holder for additional system
Nr.: 00760222



Digico 12	01930132
Duplex cable	04761060
Special adapter	04760070

GT21	03210904
TT20	04430009
Duplex cable	04710049
Special adapter	04760070

Angle mode

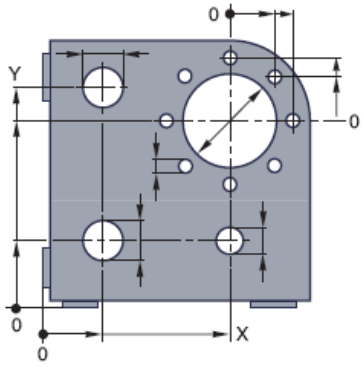


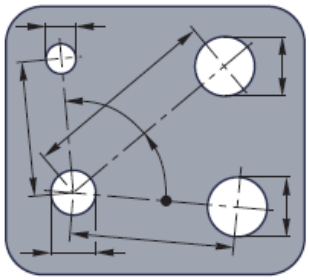
Advanced function, angle measurement

The angle calculation is done with considering X distance and Z height of two point. The X distance can be between features or simply a gauge bloc in both cases the value has to be measured.

Access to this mode is done true the advanced menu, followed by

Coordinates mode or 2D





Mode n°2, 2D application

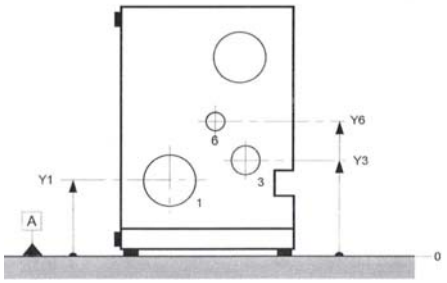
Access to the 2D mode is done true the advanced menu, it's necessary to do.

- Calibration of the probe tip before entering the 2D mode
- References have to be taken, before or at least entering the 2D mode

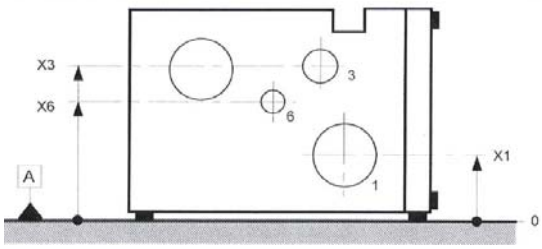
Measurements previously done in the 1D mode are automatically saved in the buffer, an option let choose between delete them or keep them.
Option for the height measurement:

With reverse point search, where in 2D mode a single rotation of the wheel start the correct measurement feature.

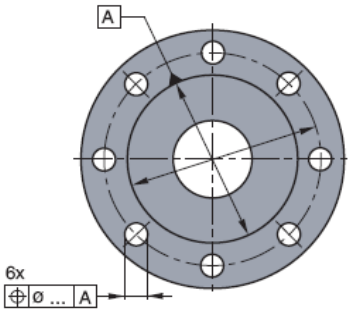
Without reverse point search, the details are not shown during process.



Angle rotation

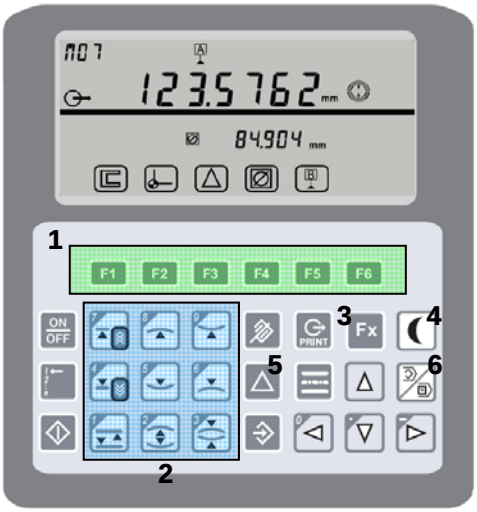


The 2D mode is an additional function for bores and shafts. More than diameter information, all features are related and positions between units are given. Rotation and offset references is simply possible.
Those measurements can be add into an existing program or be a specific control.



Adjusted dimensions for the display unit fit it directly to the column and give so an overall size very suitable for factory with small granite surfaces. The display is attached to the instrument and is available with or without printer.

Display



The upper part of the board is the display with at the bottom the icons for features keys. Those icons change according to menus and used functions. The display shows the main result, secondary measure (for example, diameter, and position of axis) and various details like reference, measurement counter etc.

1. Function keys (in relation to the display)
2. Measurement keys, to execute a probing
3. Access to the advanced menu, 2D function, perpendicularity etc.
4. Break, permits an auxiliary measurement based on another reference and access to configuration menu.
5. Delta key, for a quick calculation between last 2 measures.
6. Access to program mode, with data.

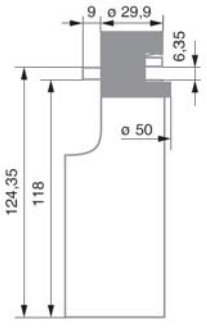
Technical details

TESA Hite plus M	**400**	**700**
Order number	*00730045*	*00730046*
TESA Hite plus M with printer	**400**	**700**
Order number	*00730057*	*00730058*
Measuring span	405 mm / 16 in	705 mm / 28 in
Application range 00760143	560 mm / 22 in	860 mm / 34 in
00760057	615 mm / 24 in	915 mm / 36 in
S07001622	785 mm / 31 in	1085 mm / 43 in
Max. permissible error*	(2.5+3*L) µm (L in m) / (0.0001+0.000003*L) in	
Repeatability* on flat surface: on diameter:	2s=<2µm / 2s=< 0.00005in 2s=<3µm / 2s=< 0.0001in	
Max. perpendicularity error	8 µm / 0.00031 in	12 µm / 0.00047 in
Display size LCD	128 x 63 mm (double display)	
Resolution	0.0001/0.001/0.01 mm – .00001/.0001/.001 in	
Number of decades	7 plus sign "-"	
Character size	12.7 x 6.4 mm (main) ; 6.3 x 4.2 or 3.8 x 2.9 mm (secondary)	
Additional display	symbols for the functions	
Instrument base	grey cast iron with rectified sole	
Keyboard	30 keys for functions and values	
Guidance across the reference surface	through mechanical contact	
Coefficient of linear expansion	12 ±1.5*10^{-6} ° K^{-1}	
Maximum perm. displacement speed	600 mm/s (manual) – 40mm/s (motorised fast displacement)	
Measuring speed	7.5 / 15 mm/s	
Force exerted by measuring head when taking readings	1.0N ±0.5N (acoustic signal)	
Measuring process	automatic	
Air cushion	Yes	
Head displacement	motorised	
Power supply	6V rechargeable battery	
Autonomy	60 hours, recharging time 8 hours	
Material measure	incremental glass scale with reference point	
Measuring head lock	No	
Fine adjustment	No	
Operating temperature range	10°C à 40°C	
Storage temperature range	-10°C à 60°C	
Maximum relative humidity	80%	
Weight	27 kg	32 kg
Degree of protection	IP40 (Electronic housing: IP65)	
Data output	Sub-D 9 pin RS 232	
Certificate	SCS	

** Valid with standard accessories*

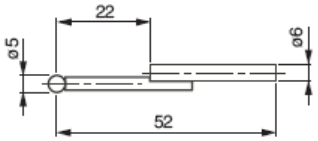
Delivery content

Calibration standard 6.35 mm



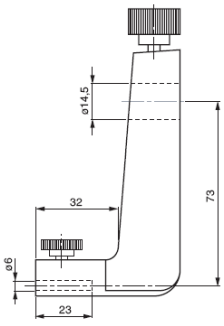
nr.: **00760291**

Measuring insert Ø 5mm



nr.: **00760227**

Default insert holder

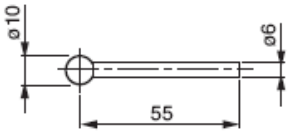


nr **00760143**

also:
- 1 power adapter with EU and US cable
- 1 certificate SCS
- 1 user manual with declaration of conformity

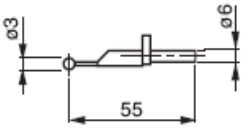
Optional accessories

Measuring insert with tungsten carbide ball, Ø 10mm



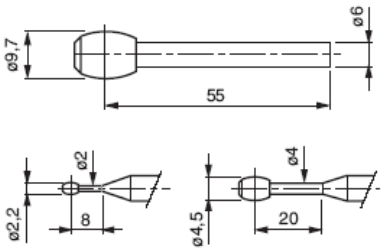
nr. **00760060***

Measuring insert with tungsten carbide ball tip, Ø 3 mm.



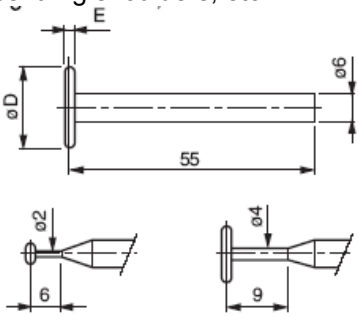
nr. **00760061***

Measuring insert with tungsten carbide measuring face (convex), for inspecting cylindrical bores or establishing internal thread position (metric or similar).



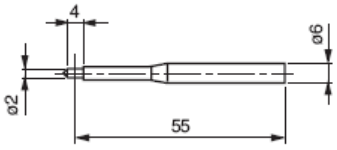
Ø = 2.2mm for M3 to M16 nr. **00760066**
Ø = 4.5mm for M6 to M48 nr. **00760067**
Ø = 9.7mm for M12 to M150 nr. **00760068**

Measuring insert With disc-shaped, tungsten carbide measuring face for measuring grooves, turned grooves, centring shoulders, etc.

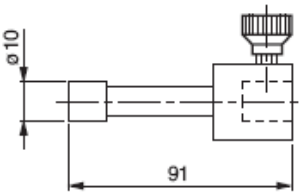


E = 1mm / Ø 4.5 mm nr **00760074**
E = 2mm / Ø 14 mm nr **00760075***
E = 3mm / Ø 19 mm nr **00760076**

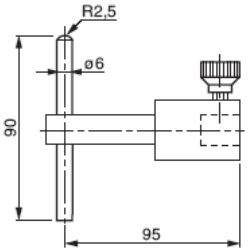
Measuring insert with small tungsten carbide measuring face, Ø 2 mm, nr. **00760082**



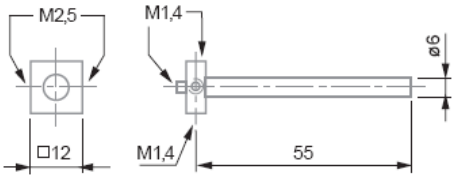
Measuring insert with Ø 10 mm tungsten carbide cylindrical face and 12 mm length. Hardened stainless steel body.
nr. **00760093***



Measuring insert With both a flat and spherical tungsten carbide measuring face. Hardened stainless steel pin, interchangeable. nr. **00760094***

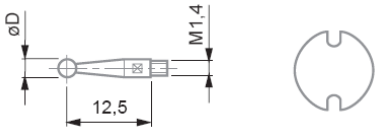


Insert holder For measuring inserts with M1,4 threads (see opposite) and M2,5 threads.



nr. **00760096***

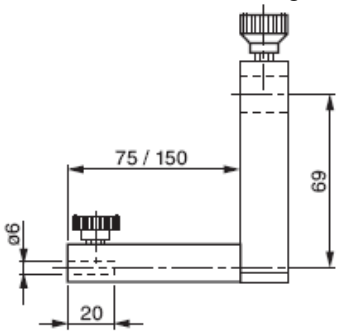
Measuring insert With tungsten carbide ball tip with M1,4 thread.



Ø 1mm nr. **01860201***
Ø 2mm nr. **01860202***
Ø 3mm nr. **01860203***

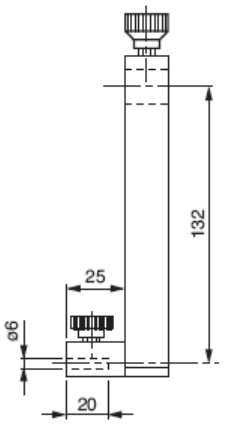
Key nr. **01860307***

Insert holder for increasing the measuring depth.



Depth L=75mm nr. **00760086**
L=150mm nr. **00760087**

Insert holder for extending the application range.

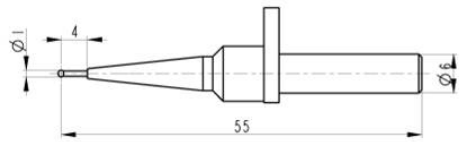


nr. **00760057**

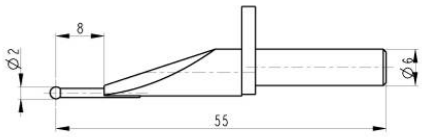
Partial set of accessories nr. 00760173
With those of the above accessories marked by an asterisk «*». Supplied in a polypropylene case (not shown on these pages).

Full set of accessories nr. 00760148
With all above accessories. Supplied in a polypropylene case (not shown on these pages).

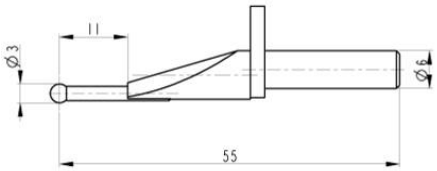
Measuring inserts with hard metal shaft and tungsten carbide ball tip:



Diameter 1 mm nr. **00760228**



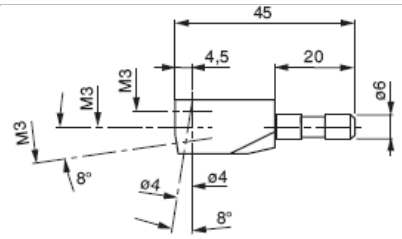
Diameter 2 mm nr. **00760229**



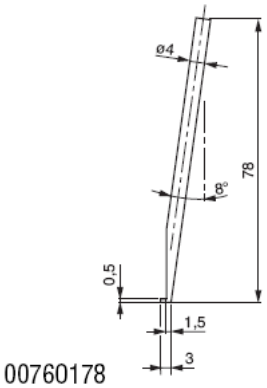
Diameter 3 mm° nr. **00760230**

Probe insert set nr. 00760175: *Supplied in a suited plastic case.*

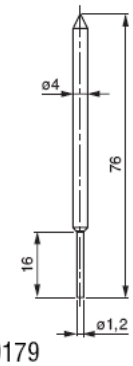
1	Insert holder	00760177
1	Probing pin In hardened steel for grooves, centring shoulders, blind bores, etc. Tilted through 8°	00760178
1	Probing pin In hardened steel, shouldered, for depth measurement	00760179
3	Measuring inserts with a hardened ball tip, Ø 0.9 mm Ø 1.9 mm Ø 2.9 mm	 00760180 00760181 00760182
1	Measuring insert with a Ø 8 mm cone-shaped measuring face in hardened steel	00760183
2	Extensions Length 20 mm, thread M3 to M3 Length 20 mm, thread M3 to M2,5	 00760184 00760185



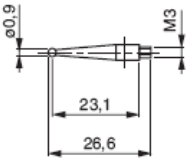
00760177



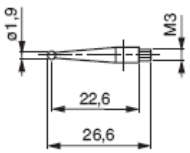
00760178



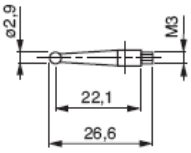
00760179



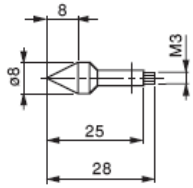
00760180



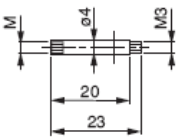
00760181



00760182



00760183



00760184/5

Connection & traceability

RS 232 / USB Cable

nr. 04761063

Connection cable for USB interface
Length 2m

Content : cable, installation CD

RS 232 / RS 232 Cable

nr. 04761052
9pin m/f, length 2m

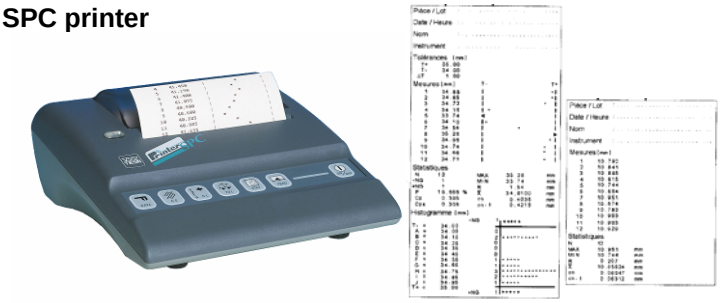
Battery 6V

nr. 00760157

Power supply adapter 110 to 240 Vac / 50 to 60 Hz
Mains cable EU:
Mains cable US:

nr. 04761054
nr. 04761055
nr. 04761056

SPC printer



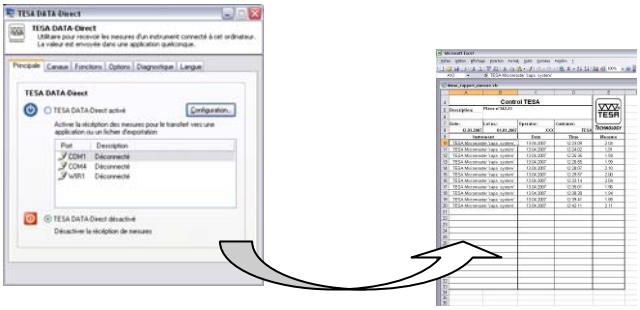
nr. 06430000

Direct print using simple statistics with tolerance mode and distribution graphic.

Content : Paper thermo sensible, power supply, user manual

Need connection cable 9pin m/f, nr. 04761052

TESA DataDirect



nr. 04981001

Utility for acquisition of measurements from various inputs (from Calipers to 3D machines). Transfer to any other Windows program the measured value with additional details and paging management for Excel or similar. Also possible, direct export as *.csv file for background archiving.

Content :
- Installation CD
- User manual as PDF on CD-Rom
- USB dongle

TESA StatExpress

nr. 04981002

From transfer to final report with statistics, the software manages all the process. Personalized headline and comments are also considered into printed reports.

Content :
- Installation CD (including DataDirect)
- User manual as PDF on CD-Rom
- USB dongle